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09/613,588	07/10/2000	John Wood	029299/0101	9715

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EXAMINER	
WILLIAMS, LAWRENCE B	
ART UNIT	**PAPER NUMBER**
2638	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/613,588	WOOD, JOHN	
	Examiner	Art Unit	
	Lawrence B. Williams	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51 and 55-105* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51 and 55-105* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 July 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Lines 4-9 of page 2 are unclear. Examiner suggests applicant rewrite these lines.

Appropriate correction is required.

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claim 61 is objected to because of the following informalities: Examiner suggests applicant replace the semi colon with a period at the end of line 3 of the claim. Appropriate correction is required.

4. Claim 63 is objected to because of the following informalities: Examiner suggests applicant delete the word "and" after "62," in line 1 of the claim. Appropriate correction is required.

5. Claims 75-79 are objected to because of the following informalities: Claims 75-79 appear to be almost exact duplicates of claims 70-74, respectively. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

7. Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 51 cites the limitation; " wherein transmitting means sends signals and receiving means sends signals and receives meaningful signals ....". It is unclear from the language as what applicant is attempting to claim. Examiner suggests applicant rewrite the claim. Accordingly, the claim has not been further treated on the merits.

8. Claim 83 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 83 cites the limitation "according to any of claim 70" in line 1. Examiner assumes applicant was attempting to write a multi dependent claim. Accordingly, the claim has not been further treated on the merits.

9. Claim 84 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Claim 84 cites the limitation "according to any of claim 70" in line 1. Examiner assumes applicant was attempting to write a multi dependent claim. Accordingly, the claim has not been further treated on the merits.

10. Claims 83-104 recites the limitation "said step of checking" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 55-61 are rejected under 35 U.S.C. 102(e) as being anticipated by Burns et al. (US Patent 6,662,135 B1).

(1) With regard to claim 1, Burns et al. discloses in Fig. 3, a method of signaling between first (modem, 300) and second (reflective mixer, 305) equipments, the method comprising the steps of: (a) transmitting a signal from said first equipment to said second equipment; (b) reflecting said signal back to said first equipment in a manner corresponding to a first bit sequence, (c) receiving the signal thus rejected at said first equipment; and (d) comparing said signal thus reflected with said transmitted signal to thereby extract said first bit sequence (col. 8,

lines 52-60; col. 10, lines 29-37). Burns et al. discloses sending a test signal (first bit sequence) to the reflective mixer where it is received and reflected back to the modem and compared (extracting would be inherent) with the original known test signal.

(2) With regard to claim 56, claim 55 inherits all limitations of claim 55 above. Furthermore, Burns et al. also discloses the method of signaling according to claim 55, the method comprising the steps of transmitting a signal corresponding to a second bit sequence from said first equipment to said second equipment, and extracting said second bit sequence from said signal at said second equipment (col. 4, lines 10-20).

(3) With regard to claim 57, Burns et al. also discloses the method comprising the step of checking at the first equipment the signal thus reflected (col. 8, lines 61-64).

(4) With regard to claim 58, Burns et al. also discloses the method comprising the step of reflecting said signal back to said first equipment in phase with said signal (col. 8, lines 13-15; col. 13, Table 1).

(5) With regard to claim 59, Burns et al. also discloses the method comprising the step of reflecting said signal back to said first equipment out of phase with said signal (col. 8, lines 15-17; col. 13, Table 1).

(6) With regard to claim 60, Burns et al. also discloses wherein said first and second equipments are linked by a transmission line (col. 12, lines 33-35) having a reflective termination at said second equipment, the method comprising the step of varying the reflective property of said termination in a manner corresponding to said first bit sequence (col. 8, lines 3-6).

(7) With regard to claim 61, claim 16 inherits all limitations of claim 60. Furthermore, Burns et al. also discloses the method comprising the step of varying the reflective property of

said termination between open-circuit and short-circuit conditions in a manner corresponding to said first bit sequence (col. 8, lines 3-6).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 62-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (US Patent 6,662,135 B1) as applied to claim 56 above, and further in view of Huebner (US Patent 3,798,608).

(1) With regard to claim 62, claim 62 inherits all limitations of claim 56, above. As noted above, Burns et al. discloses all limitations of claim 56 including the step of transmitting a second bit sequence from the first equipment to the second equipment. Burns et al. does not however teach the step comprising the application of successive oppositely-directed voltage excursions to the transmission line.

However, Huebner discloses a digital transmission apparatus where he discloses transmitting from a first equipment (transmitter) to a second equipment (receiver) comprising the application of successive oppositely-directed voltage excursions to a transmission line (col. 2, lines 31-48).

It would have been obvious to one skilled in the art to combine the teachings of Burns et al. with those of Huebner as a method of ensuring reliable and continuous transmission of data (col. 2, lines 17-21).

(2) With regard to claim 63, Huebner also discloses the method according to claim 62, and comprising the step of varying the phase of successive oppositely-directed voltage excursions in dependence on a second bit sequence (col. 5, lines 22-27).

(3) With regard to claim 64, claim 64 inherits all limitations of claim 62, above. Though Huebner is silent as to the excursions being substantially the same extent, from Fig. 2, the excursions appear to be the same extent. Also one skilled in the art would be well aware of bi-polar signaling including excursions of ± 3, ± 5, etc.

It would have been obvious to one skilled in the art to combine the teachings of Burns et al. with those of Huebner as a method of ensuring reliable and continuous transmission of data (col. 2, lines 17-21).

(4) With regard to claim 65, Though Huebner is silent as to the excursions being substantially the same extent, from Fig. 2, the excursions appear to be the same extent. Also one skilled in the art would be well aware of bi-polar signaling including excursions of ± 3, ± 5, etc.

(5) With regard to claim 66, claim 66 inherits all limitations of claim 62. Furthermore, Huebner also discloses in Fig. 2, wherein the oppositely-directed voltage excursions are of opposite polarity.

(6) With regard to claim 67, claim 67 inherits all limitations of claim 63. Furthermore, Huebner also discloses in Fig. 2, wherein the oppositely-directed voltage excursions are of opposite polarity.

(7) With regard to claim 68, claim 68 inherits all limitations of claim 64. Furthermore, Huebner also discloses in Fig. 2, wherein the oppositely-directed voltage excursions are of opposite polarity.

(8) With regard to claim 69, claim 69 inherits all limitations of claim 66. Furthermore, Huebner also discloses in Fig. 2, wherein the oppositely-directed voltage excursions are symmetrical about nominally zero volts.

15. Claims 70-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (US Patent 6,662,135 B1) in combination with Huebner (US Patent 3,798,608) as applied to claims 62-64, 66, and 69, respectively and further in view of Lender (US Patent 3,303,284).

(1) With regard to claim 70, claim 70 inherits all limitations of claim 62. As noted above, Burns et al. in combination with Huebner discloses all limitations of claim 62. They do not however teach the method comprising the step of applying a further voltage component in association with the oppositely-directed excursions.

However, Lender teaches a framing method and apparatus for duobinary data transmission wherein he discloses introducing a sine wave (further voltage component) into the duobinary pulses (oppositely-directed excursions) to be transmitted (col. 1, lines 45-48).

It would have been obvious to one skilled in the art to combine the teachings of Lender with the combination invention of Burns et al. and Huebner as a method of preserving transmission rates in duobinary transmissions (col. 5, lines 3-10).

(2) With regard to claim 71, claim 71 discloses the exact limitations of claim 70. Therefore the same rejection applies.

(3) With regard to claim 72, claim 72 discloses the exact limitations of claim 70. Therefore the same rejection applies.

(4) With regard to claim 73, claim 73 discloses the exact limitations of claim 70. Therefore the same rejection applies.

(5) With regard to claim 71, claim 71 discloses the exact limitations of claim 70. Therefore the same rejection applies.

(6) With regard to claims 75-79, claims 75-79 appear to be substantial duplicates of claims 70-74. Therefore a similar rejection applies.

(7) With regard to claim 80, claim 80 inherits all limitations of claim 70 above. Furthermore, Huebner et al. also teaches wherein the further voltage component has a magnitude medial of the voltage excursion (col. 2, lines 37-43). Huebner discloses the transmission of the bi-polar signals separated by a quiet period (0 volts) for approximately one-half of the bit period.

It would have been obvious to one skilled in the art to combine the teachings of Lender with the combination invention of Burns et al. and Huebner as a method of preserving transmission rates in duobinary transmissions (col. 5, lines 3-10).

(8) With regard to claim 81, claim 81 inherits all limitations of claim 75 above. Furthermore, Huebner et al. also teaches wherein the further voltage component has a magnitude medial of the voltage excursion (col. 2, lines 37-43). Huebner discloses the transmission of the bi-polar signals separated by a quiet period (0 volts) for approximately one-half of the bit period.

It would have been obvious to one skilled in the art to combine the teachings of Lender with the combination invention of Burns et al. and Huebner as a method of preserving transmission rates in duobinary transmissions (col. 5, lines 3-10).

(9) With regard to claim 82, claim 82 inherits all limitations of claim 80 above. Furthermore, Huebner et al. also teaches wherein the further voltage component is a constant substantially zero volts (col. 2, lines 37-43). Huebner discloses the transmission of the bi-polar signals separated by a quiet period (0 volts) for approximately one-half of the bit period.

It would have been obvious to one skilled in the art to combine the teachings of Lender with the combination invention of Burns et al. and Huebner as a method of preserving transmission rates in duobinary transmissions (col. 5, lines 3-10).

16. Claim 105 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. (US Patent 6,662,135 B1) in combination with Huebner (US Patent 3,798,608) as applied to claim 62 above, and further in view of Jensen et al. (US Patent 5,5586,054).

As noted above, Burns et al. in combination with Huebner disclose all limitations of claim 62. They do not however disclose the method comprising the step of time domain reflectometry to detect transmission line faults. Huebner does disclose the use of a time domain reflective mixer for performing test on a communication system device.

However, Jensen et al. discloses a time-domain reflectometer for detecting transmission line faults (col. 1, lines 10-20).

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Jensen et al with the combined teachings of Burns et al. and Huebner to assist in the isolation and repair of cable faults and other network problems.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Jensen et al. discloses in US Patent 5,586,054 Time-Domain Reflectometer For Testing Coaxial Cables.

b.) Lassaux et al. discloses in US Patent 4,649,335 Equipment For Locating a Reflection Point In a Transmission Line.

c.) Hulina discloses in US Patent 5,521,512 Time Domain Reflectometer Using Successively Delayed Test Pulses and An Interleaved Sampling Procedure.

d.) Miki et al. discloses in US Patent 5,646,758 Optical Time Compression Multiplexing Transmission System.

e.) Oldfield et al. discloses in Us Patent 5,587,934 Automatic VNA Calibration Apparatus.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
February 4, 2006

EMMANUEL BAYARD
PRIMARY EXAMINER